Air Quality Permitting
Statement of Basis

January 8, 2008

Tier II Operating Permit
No. T2-050508

Cyprus Thompson Creek Mine, Clayton

Facility ID No. 037-00001

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PROPOSED

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Acronyms, Units, and Chemical Nomenclature

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
Btu	British thermal unit
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	Environmental Protection Agency
gpm	gallons per minute
gr	grain (1 lb = 7,000 grains)
HAPs	Hazardous Air Pollutants
hp	horsepower
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
m	meter(s)
MACT	Maximum Available Control Technology
MMBtu	Million British thermal units
NESHAP	Nation Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O_3	ozone
PM	Particulate Matter
PM_{10}	Particulate Matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	Permit to Construct
PTE	Potential to Emit
Rules	Rules for the Control of Air Pollution in Idaho
scf	standard cubic feet
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	synthetic minor
SO_2	sulfur dioxide
SO_x	sulfur oxides
T/yr	Tons per year
$\mu g/m^3$	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.400 through 410 Rules for the Control of Air Pollution in Idaho (Rules) for issuing Tier II operating permits (Tier II).

2. FACILITY DESCRIPTION

The Cyprus Thompson Creek Mining Company (Thompson Creek) operates an open pit molybdenum mine and concentrator in central Idaho. The operation produces 15-20 million pounds of molybdenum disulfide per year. Two types of concentrate are produced at the Thompson Creek facility, concentrate grade and lubricant grade. Concentrate grade is shipped off-site for further refining. Lubricant grade concentrate goes through additional processing steps to produce a higher purity product. High purity product is approximately 98 percent molybdenum disulfide.

3. FACILITY / AREA CLASSIFICATION

Thompson Creek is classified as a synthetic minor facility because the facility's potential to emit is limited to less than major source thresholds. The AIRS classification is "SM" synthetic minor. Fugitive emissions from the facility do not count towards the facilities classification because the facility is not a designated facility as defined by IDAPA 58.01.01.006.30.

The facility is located within AQCR 63 and UTM zone 11. The facility is located in Custer County which is designated as attainment/unclassifiable for all regulated criteria pollutants (PM_{10}, CO, NO_2, SO_2, lead, and ozone).

The AIRS information provided in Appendix A defines the classification for each regulated air pollutant at Thompson Creek. This required information is entered into the EPA AIRs database.

4. APPLICATION SCOPE

Thompson Creek has submitted an application to renew it's Tier II operating permit that was issued December 22, 1999 and which expired December 22, 2004. Thompson creek has not proposed any changes to the facility.

Application Chronology

August 5, 2005	DEQ received an application from Thompson Creek
September 8, 2005	DEQ determined the application incomplete
September 28, 2005	DEQ received a request for 180 day extension of application
October 6, 2005	DEQ gave written approval for a 180 day extension to allow modeling
April 5, 2006	DEQ received an updated application from Thompson Creek
June 19, 2006	DEQ determined the application complete
April 11, 2007	DEQ received additional application materials from Thompson Creek
October 10, 2007	DEQ received a HAP emission inventory from Thompson Creek
October 24, 2007	DEQ received a HAP emission inventory from Thompson Creek
November 30, 2007	DEQ received a refined HAP emission inventory from Thompson Creek

In accordance with IDAPA 58.01.01.404.04, the expiration of a permit will not affect the operation of a stationary source or facility during the administrative procedure period associated with the permit renewal process.

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this Tier II operating permit.

5.1 Equipment Listing

Table 5.1 lists all permitted emission units at the facility.

Table 5.1 PERMITTED EMISSION UNITS

Source Description	Emissions Control(s)
Portable Crusher Manufacturer: Pioneer Model: 2036	Reasonable Control
Primary Crusher Manufacturer: GATX-Fuller Type: Gyratory Operating Capacity: 4,450 ton/hr	Baghouse Manufacturer: American Air Filter Model: Jet Pulse modular Fabripak
Overland Conveyor Transfer Manufacturer: GATX-Fuller	Baghouse Manufacturer: American Air Filter Model: Jet Pulse modular Fabripak
East and West Ore Feeders Type: Apron Feeders	Wet Scrubber Manufacturer: Ducon Model: Model IV
Holo Flite Dryer #1 Manufacturer: Holo Flite Model: D-1216-5 Operating Temperature ~ 212 degrees F	Wet Scrubber Manufacturer: Luftrol Model: KVS10 ESP Manufacturer: United Air Specialists Model: SH-10
Lube Grade Dryer Stack 1) Holo Flite Dryer #2 Manufacturer: Joy-Denver Model: D1216-5 2) Rotary Kiln Dryer Manufacturer: Christian Model: 12-13-16-UNI Operating Temperature ~ 1,250 degrees F	Holo Flite Dryer #2 and the Rotary Kiln Dryer each have a dedicated wet scrubber then each gas stream is combined and sent through a single ESP Holo Flite Dryer #2 Wet Scrubber Manufacturer: Luftrol Model: KVS10 Rotary Kiln Dryer Wet Scrubber Manufacturer: Luftrol Model: KVS11 Holo Flite Dryer #2 & Rotary Kiln Dryer ESP Manufacturer: United Air Specialists Model: SH-10
Jet Mill Pneumatic mill Manufacturer: Pulvajet Mill Model: Aljet Model 810 CIHL	Baghouse Manufacturer: MikroPulsaire Model: 36-S-10-30

Tech Fine Packaging Bin High Purity Molybdenum Packaging	Baghouse Manufacturer: Mag-Pac Model: 52-65
Pancake Mill Feed Bin Pneumatically Convey High Purity Molybdenum	Baghouse Manufacturer: American Air Filter Model: AR35
Super Fine Packaging Bin & Pancake Mill Manufacturer: Jet Pulverizer Model: Micron-Master	Baghouse Manufacturer: Mag-Pac Model: 52-65
Pebble Lime Baghouse Pneumatic transport system	Baghouse Manufacturer: Dalamate
Boiler #1 Manufacturer: York Shipply Fuel Usage: 33 gallons per hour of fuel oil	None
Hot Oil Boiler Manufacturer: Parker Fuel Usage: 13.5 gallons per hour of fuel oil	None
Waste Oil Heaters 4 units Fuel Usage: 3.6 gallons per hour for each unit	None

5.2 Emissions Inventory

Criteria Pollutants

Table 5.2 gives a summary of the emission estimates provided by the applicant for criteria air pollutants. DEQ reviewed and accepted the emission estimate calculations. The applicant's emission estimate calculations can be seen in the October 24, 2007 submittal and the November 30, 2007 submittal.

Table 5.2 EMISSION INVENTORY SUMMARY FOR FACILITY CLASSIFICATION – PERMITTED EMISSIONS

Emission Unit	**PM**		**PM_{10}**		**VOC**		**CO**		**NO_x**		**SO_2**		**HCl**	
	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr	lb/hr	t/yr
Waste Oil Heaters	.448	.62	.448	.62	-	.02	.072	.1	.8	1.1	1.1	1.5		
Boiler #1	.076	.33	.076	.33	-	0.0364	.17	.72	.66	2.9	2.3	10.3		
Hot Oil Heater	.031	.14	.031	.14	-	0.015	.068	.3	.27	1.18	.95	4.2		
Generator - Motivator	3.28	4.9	3.28	4.9	-	5.52	10.13	15.2	46.2	69.3	3.1	4.6		
Generator - Mill	.58	.14	.58	.14	-	.16	1.8	4.5	8.2	2.1	.54	.14		
Generator - Pumpback	.99	.25	.99	.25	-	.28	3.1	.77	14	3.5	.92	.23		
Generator – Tailings Pump	2.8	.7	2.8	.7	-	.8	8.6	2.2	39.4	9.9	2.6	.65		
Primary Crusher	22.3	40.6	2.23	4.06										
Overland Conveyor	5.3	9.7	2.67	4.8										
East & West Ore Feeders	10	43.8	21.9	5										
Holo Flite Dryer #1	.05	.19	.02	.08	-	Unknown								
Lube Grade Dryer Stack	.001	.004	.001	.004	-	but < 92[1]								
Jet Mill	.016	.058	.016	.0576										
Tech. Fine Packaging	.013	.057	.013	.047										
Pancake Mill	.001	.002	.001	.002										
Super Fine Packaging	.024	.11	.024	.11										
Lime Silo	.26	.056	.11	.022										
Leach Plant													.003	.01
Gasoline/Diesel Storage						.76								
Total		102		21.3		7.6		23.8		90		21.6		.01

1) Combined emissions from Holofilte Dryer #1 and Lube Grade Dryer System, emissions rates to be confirmed by source test. Emissions are expected to be much less than 92.4 tons per year (a rate that when combined other facility VOC emissions would equal the 100 ton per year major facility threshold for a Tier I source).

The applicant also provided an emission inventory for PM and PM_{10} from fugitive sources at the mine. Fugitive emissions do not count towards the facilities classification as major or minor because the facility is not defined as a designated facility. Emissions estimates were included for blasting, haul roads, ore loading and dumping, and crushing. The fugitive emissions are listed on pages 23 through 26 of the April 11, 2007 application materials provided by Thompson Creek. The applicant conservatively assumed that all PM was PM_{10} and used various emission factors including those from AP-42 to arrive at the estimated emissions. Total PM/PM_{10} emissions from fugitive sources are very conservatively estimated to be 1,304 tons per year. These emissions were estimated by the applicant assuming no control of fugitive emissions (except for primary crushing, conveying and haul roads) therefore they do not represent emissions that will occur while reasonably controlling fugitive emissions as specified by IDAPA 58.01.01.650, and as required by the fugitive dust control plan that the facility must develop and comply with. Generally, fugitive dust emission factors are highly uncertain and unreliable (EPA AP-42 ratings, and *Fugitive Dust Control Technology*, 1983, page 54). Often the factors are dependent on many variables including wind speed, soil moisture content and are usually rated by EPA's AP-42 (Compilation of Emissions Factors) to be below average, or even poor, on how well they estimate actual emissions. Rather than refining emission estimates for fugitive emissions that are based on below average, or even poor emission factors, compliance with the requirement to reasonably control fugitive emissions as required by the Rules for the Control of Air Pollution is relied upon for this facility. The permit also requires the permittee to develop, implement, and maintain a fugitive dust control plan to assure that fugitives are reasonably controlled. The permit requires that the permittee shall modify the fugitive dust control plan if it is determined that fugitive emissions are not being reasonably controlled. This is a practical way of regulating fugitive emissions as opposed to consuming energies refining fugitive emissions estimates from a facility in a remote location using unreliable emission estimation methods.

Hazardous Air Pollutants (HAP)

On October 24, 2007 Thompson Creek Provided a HAP metal emission inventory from the Holo Flite Dryer #1, Holo Flite Dryer #2, and the Rotary Kiln (Lube Grade Drying System). The emission estimate details may be seen in their October 24, 2007 submittal to DEQ. Given below is a summary discussion about the emission inventory provided.

Concentrate grade molybdenum is produced by drying the concentrate in Holo Flite Dryer #1. The Holo Flite Dryer #1 is a heated screw conveyor and operates at 212 degrees Fahrenheit. There is no further heating of the concentrate. All HAP metals, except mercury would exist as particulate matter at this operating temperature. Mercury is not detectable in the ore, therefore emissions are negligible. Particulate matter emissions from Holo Flite Dryer #1 are controlled by wet scrubber and then by an electrostatic precipitator. Particulate matter emissions from Holo Flite Dryer #1 are estimated to be 0.087 tons per year. Since all HAP metals (except mercury) would exist as particulate matter at these operating temperatures, metal emissions could not exceed 0.87 tons per year. Table 1 provides a summary of the individual hazardous air pollutant metal emissions estimates provided Thompson Creek for Holo Flite Dryer #1.

Lubricant grade molybdenum is produced by drying the concentrate in Holo Flite Dryer #2 then it is further dried in a rotary kiln. Holo Flite Dryer #2 is a screw conveyor and operates at 212 degrees Fahrenheit; the rotary kiln operates at a maximum temperature of 1,250 degrees Fahrenheit. The maximum operating temperature of 1,250 degrees Fahrenheit is below the melting point of all metals listed as hazardous air pollutants except mercury. As previously stated mercury is not detectable in the

ore and emissions would be negligible. The exhaust gases from the Lubricant Grade Drying Circuit are cooled by the use of a wet scrubber to below 100 degrees Fahrenheit. All HAP metals, except mercury would exist as particulate matter at that operating temperature. Particulate matter emissions from the lubricant grade molybdenum production circuit are controlled by wet scrubber and then by an electrostatic precipitator. Particulate matter emissions from lubricant grade molybdenum production circuit were determined by emissions testing to be 0.004 tons per year. Therefore metal emissions could not exceed 0.004 tons per year. Table 5.3 provides a summary of the individual hazardous air pollutant metal emissions estimates provided by Thompson Creek for the Lubricant Grade Molybdenum drying circuit.

Table 5.3 HAP Metal Emissions From Holo Flite Dryer #1 and Lubricant Grade Drying Circuit

	Arsenic (T/yr)	Lead (T/yr)	Chromium (T/yr)	Cadmium (T/yr)	Cobalt (T/yr)	Mercury	Beryllium (T/yr)	Nickel (T/yr)
Holo Flite Dryer #1	1.71E-5	3.91E-5	2.6E-5	4.19E-7	2.0E-8	Not Detectable	2.2E-8	2.6E-6
Lubricant Grade Drying System	3.75E-7	8.57E-7	5.69E-7	9.2E-9	4.38E-10	Not Detectable	4.82E-10	5.69E-8

Total particulate matter emissions from all the dryers at the facility are estimated to be 0.091ons per year. Because all HAP metals detectable in the ore will exist as particulate matter at the temperatures of the exhaust gases, HAP metal emissions from the dryers could not exceed the particulate matter estimated emission rate of 0.091 tons per year. Therefore, refining the individual HAP metal emission estimates provided by the applicant is not necessary. Even if PM/HAP metal emissions were to increase by a factor of 10, emissions would remain negligible.

The October 24, 2007 emission inventory provided by Thompson Creek included information not previously provided regarding the use of residual oil in processing ore to molybdenum concentrate. Residual fuel oil is used at up to 1.5% by weight of the concentrate. The oil bearing concentrate is heated in the dryers and there is a potential for significant VOC emissions from the dryers. DEQ questioned the VOC control efficiency that was used in the emission calculations for the wet scrubbers and electrostatic precipitators. Thompson Creek provided more refined emissions information in a November 30, 2007 submittal.

Thompson creek estimated the volatile HAP emissions from the entire facility except for the dryers. Thompson creek proposed conducting a performance test on the dryers to determine the volatile HAP emissions. Table 5.4 is a summary of the emission estimates provided by Thompson Creek for the entire facility except for the dryers. The Table also includes the Tier I major facility thresholds for HAPs, and the amount of volatile HAPs that would need to be emitted from the dryers in order for the facility to be major.

Table 5.4 Volatile HAP Emission Rates

Volatile Hazardous Air Pollutant	Facility Emissions Rate Minus the Dryers (T/yr)	Regulatory Threshold for Major Facility Classification (T/yr)	Emission Rate From Dryers that would cause the facility to be Major for HAPs (T/yr)
Benzene	1.78E-2	10	9.98
Ethyl benzene	1.79E-2	10	9.98
Formaldehyde	2.20E-2	10	9.98
Naphthalene	2.53E-4	10	>9.99
1,1,1-Trichloroethane	1.67E-3	10	>9.99
Toluene	9.21E-3	10	9.99
o-Xylene	5.47E-3	10	9.99
Total Volatile HAPs	7.44E-2	25	24.93

Table 5.5 summarizes the residual fuel oil usage rate and the potential uncontrolled VOC emissions from the dryers assuming all of the oil in the concentrate is emitted as VOC. The HAP component of the VOCs is unknown. Actual emissions from Holo Flite Dryer #1 are expected to be much less than that given in the given in Table 5.5 because it is unlikely that all of the oil will be emitted due to the short residence time of concentrate in Holo Flite Dryer #1, the relatively low operating temperature of 212 degrees Fahrenheit, and because VOC emissions will be controlled by the wet scrubber and electrostatic precipitator (though at an unknown control efficiency). Additionally, Holo Flite Dryer #1 is not designed to remove the oil from the concentrate; it is designed to remove water from the concentrate.

Actual emissions from the Lube Grade Drying circuit are also expected to be less than the potential emissions given in the Table 5.5. Emissions from the Lubricant Grade Drying System are also controlled by a wet scrubber and electrostatic precipitator at an unknown efficiency. The Lubricant Grade Drying System is designed to remove nearly all of the oil from the concentrate; the rotary kiln maximum operating temperature is 1,250 degrees Fahrenheit and the potential for VOC emissions is high. The fuel oil in the concentrate is prevented from combusting through process controls because if it combusted it would adversely affect the quality of the molybdenum.

Table 5.5 Potential Uncontrolled VOC Emissions from Concentrate Drying Operations

Source	Concentrate Processing Rate (T/yr)	Percent Residual Fuel Oil in Concentrate (maximum)	Maximum Potential VOC Emissions (T/yr)
Holo Flite Dryer #1	81,030	1.5	1,220[1] (3.66[2])
Lubricant Grade Dryers	5,488	1.5	82

1) This assumes all of the oil in the concentrate is removed during the drying process.
2) The applicant provided an unsubstantiated estimate that only 0.3 percent of the oil is driven off the concentrate in Holo Flite Dryer #1 which is designed to remove water, not oil from the concentrate.

Because the VOC control efficiency of the wet scrubbers and the electrostatic precipitator that are used to control emissions from the dryers are unknown a source test is required by the permit to determine the VOC emissions rates from both the Holo Flite Dryer #1 and the Lubricant Grade dryers (Holo Flite Dryer #2 and the Rotary Kiln).

Thompson Creek estimated the maximum potential to emit for any one volatile HAP from the entire facility except the concentrate drying operations. The maximum estimated individual HAP emission,

without consideration of the drying operations, is 0.018 tons per year of benzene. If VOC emissions from the concentrate drying operations are determined to be greater than 2.26 pounds per hour (which is equivalent to 9.9 tons per year) by the emissions test then the facility must submit an updated facility wide HAP emission inventory, including a speciation of the HAPs in dryer VOCs, to compare the Tier I major facility threshold of 10 tons per year of any individual HAP and 25 tons per year of a combination of all HAPs.

5.3 Modeling

Thompson Creek Mine provided an air pollutant dispersion model to DEQ for review. Details of that review can be seen in the memorandum included in Appendix B. A summary of the ambient impacts can be seen in Table 5.6.

Table 5.6 RESULTS OF IMPACT ANALYSIS

Pollutant	Averaging Period	Modeled Design Concentration ($\mu g/m^3$)[b]	Background Concentration ($\mu g/m^3$)	Total Ambient Impact ($\mu g/m^3$)	NAAQS[c] ($\mu g/m^3$)	Percent of NAAQS
PM_{10}	24-hour	46.3	43	89.3	150	60%
	Annual	8.1	9.6	17.7	50	35%
SO_2	3-hour	102.5	34	136.5	1,300	11%
	24-hour	32.4	26	58.4	365	16%
	Annual	2.5	8	10.5	80	13%
NO_{2f}	Annual	4.7	4.3	9.0	100	9%

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this Tier II permit.

IDAPA 58.01.01.400.....Procedures and Requirements for Tier II Operating Permits

Thompson Creek Tier II operating permit expired on December 22, 2004 and the permittee has submitted an application to renew the permit. In accordance with IDAPA 58.01.01.404.04, the expiration of a permit will not affect the operation of a stationary source or facility during the administrative procedure period associated with the permit renewal process.

IDAPA 58.01.01.200.....Procedures and Requirements for Permits to Construct

Thompson Creek has not proposed a modification that would require a permit to construct; therefore the requirement to obtain a permit to construct does not apply.

IDAPA 58.01.01.210.....Preconstruction Compliance with Toxic Standards

Thompson Creek has not proposed a modification that would trigger the toxic air pollutant preconstruction requirements of IDAPA 58.01.01.210.

IDAPA 58.01.01.006.30.....Designated Facility

Thompson Creek Mine and Mill are not defined as designated facilities.

IDAPA 58.01.01.300.....Requirements for Tier I Operating Permits.

Thompson Creek is a synthetic minor Tier I facility because potential emission of nitrogen oxides and PM_{10} are greater than 100 tons per year but permitted emission are less than 100 tons per year.

The facility does have permitted emissions of 102 tons per year of particulate matter (PM). However, in accordance with EPA's October 16, 1995 guidance document, "[T]he Federal minimum for applicability of title V to sources of particulate matter should be based on the amount of emissions of PM-10, not particulate matter, that the source has the potential to emit." Thompson Creek potential to emit PM_{10} emissions is 21.3 tons per year, therefore the facility is a Tier I (Title V) minor facility even though PM emissions are greater than 100 tons per year.

Fugitive emission do not count from the facility because it is not a designated facility and does not have emission units regulated by an NSPS or NESHAP prior to August 7, 1980

40 CFR 60.380 .....Standards for Metallic Mineral Processing Plants

The provisions of this subpart are applicable to affected units that are constructed or modified after August 24, 1982. The following emission units were installed in 1989 and are defined as affected emissions units:

- Holo Flite Dryer #2
- Rotary Kiln
- Jet Mill
- Pancake Mill
- Tech Fine Packaging Bin and Super Fine Packaging Bin
- Bucket elevators associated with the above listed equipment

All crushers at the mine were installed prior to August 24, 1982 and are not affected emission units.

In accordance with 40 CFR 60.382 the emission limits for affected emission units are:

- 0.05 grams of particulate matter per dry standard cubic meter
- 7% opacity for emissions units that are not controlled by a wet scrubber
- Fugitive particulate matter emissions are limited to 10% opacity

40 CFR 60.384 has air pollution control device monitoring requirements, but they are only for wet scrubbers. These monitoring provisions apply to the Holo Flite Dryer #2 wet scrubber which is the only affected unit using a wet scrubber. Holo Flite Dryer #1 utilizes a wet scrubber but it was installed in 1981 which is prior to the NSPS applicability date. The NSPS monitoring requirements for the Holo Flite Dryer #2 wet scrubber and the wet scrubbers on the kiln are:

> The permittee shall install, calibrate, maintain, and operate a monitoring device for the continuous measurement of the change in pressure of the gas stream through the scrubber and a device for the continuous measurement of the scrubbing liquid flow rate to the scrubber. The pressure measuring device must be certified by the manufacturer to be accurate within plus or minus one inch of water and must be calibrated on an annual basis in accordance with manufacture's instructions. The scrubbing liquid flow rate monitor must be certified by the manufacturer to be accurate within plus or minus 5% of the design scrubbing liquid flow rate and must be calibrated on at least an annual basis in accordance with the manufacture's instructions.

In accordance with 40 CFR 60.385 Thompson Creek shall:

Submit semiannual reports to DEQ of occurrences when the measurements of the scrubber pressure loss or liquid flow rate differ by more than plus or minus 30% from the average obtained during the most recent performance test. The reports shall be postmarked within 30 days following the end of the second and fourth calendar quarters.

5.5 Fee Review

In accordance with IDAPA 58.01.01.407 the Tier II permit processing fee is $10,000 because permitted emission are greater than 100 tons per year, and the facility is a synthetic minor facility. A summary of the permitted emissions is included in Table 5.7.

The facility is not a Tier I major facility, therefore Tier I fees do not apply.

Table 5.7 TIER II PROCESSING FEE SUMMARY

Emissions Inventory	
Pollutant	Permitted Emissions (T/yr)
NO_X	90.0
PM10	21.3
PM	102.0
SO_2	21.6
CO	23.8
VOC	6.9
HAPS/TAPS	0.0
Total:	265.6
Fee Due	**$ 10,000.00**

5.6 Regional Review of Draft Permit

On July 19, 2007 the DEQ Idaho Falls Regional Office was provided a draft of the initial proposed permit for review and comment. Comments were received and addressed.

The revised proposed permit was provided to the Idaho Falls Regional Office for review on December 14, 2007. Comments were received and addressed.

5.7 Facility Review of Draft Permit

On July 23, 2007 Thompson Creek was provided a draft of the initial proposed permit for review. On August 15, 2007 DEQ received Thompson Creek's comments on the draft permit. The comments received were to more accurately describe the handling and storing of pebble lime and to clarify that the East and West Ore Feeders have their own stack. These changes are included in the permit.

On December 28, 2007 Thompson Creek was provided a draft of the revised proposed permit for review. On January 7, 2008 DEQ received Thompson Creek's comments on the draft permit. Comments received were to correct typographical error and to make clear that the statement of basis indicates that the expiration of the Tier II operating permit does not affect the operation of the facility during the administrative process of processing the permit application.

6. PERMIT CONDITIONS

Facility-Wide Permit Conditions – Permit Section 2.

Facility-Wide permit conditions included in the permit in Section 2 of the permit.

Fugitive Emissions (Permit Conditions 2.1-2.4)

Fugitive emission are required to be reasonably controlled consistent the Rules for the Control of Air Pollution in Idaho, IDAPA 58.0.01.651. The permittee is required to develop a fugitive dust control plan to establish good operating practices for limiting the formation and dispersion of dust. The plan must address mining areas, haul roads, load-out areas, drill rigs, conveying operations, and blasting operations. To assure compliance, the permit requires weekly monitoring of fugitive emissions at the facility to determine if they are being reasonably controlled. The permittee shall also monitor and maintain records of the frequency and the method(s) used (i.e., water, chemical dust suppressants, etc.) to reasonably control fugitive emissions and shall record any fugitive dust complaints it receives and how the complaint was responded to. Should DEQ determine that fugitive dust emissions are not being reasonably controlled the permittee shall update the fugitive dust control plan to include the new methods employed to reasonably control fugitive dust.

Odors (Permit Conditions 2.5-2.6)

Permit Condition 2.5 is a quote of the Rules for the Control of Odors (IDAPA 58.01.01.775). To assure compliance the permittee is required to maintain records of all odor complaints received and if the complaint has merit, the permittee shall take appropriate corrective action as expeditiously as practicable. These compliance assurance requirements are consistent with all Tier II operating permits currently issued by DEQ.

Visible Emissions (Permit Condition 2.7-2.8)

Permit Condition 2.7 is a quote of the visible emission rule of IDAPA 58.01.01.625. Permit Condition 2.8 requires periodic compliance assurance by requiring visible emission to be observed once each quarter if any visible emissions are present from any point of emission, the permittee shall either take appropriate corrective action as expeditiously as practicable, or perform a Method 9 opacity test. These compliance assurance requirements are consistent with all Tier II operating permits currently issued by DEQ.

Open Burning (Permit Condition 2.9)

This permit condition is included to make the permittee aware that there are rules regarding open burning.

Reports and Certification (Permit Condition 2.10)

Permit Condition 2.10 informs the permittee of the address to submit any reports or notifications and makes clear that all information submitted to DEQ must be certified as true accurate and complete in accordance with IDAPA 58.01.01.123.

Obligation to Comply (Permit Condition 2.11)

The permittee is informed that this permit does not relieve the operator from the responsibility to comply with all applicable rules and regulations. This permit condition is included in all Tier II operating permits currently issued by DEQ.

Fuel Burning Equipment (Permit Condition 2.12)

Permit Condition 2.12 contains the particulate matter emission limits applicable to Thompson Creek for fuel burning equipment. It has been demonstrated that for facilities combusting gas (natural or liquefied petroleum gas) and #2 fuel oil compliance assurance mechanisms are not warranted.

Sulfur Content in Fuels (Permit Conditions 2.13-2.14)

These permit conditions include the sulfur content limits for fuels specified by IDAPA 58.01.01.725. Permit Condition 2.15 requires that the permittee shall maintain documentation of supplier verification of distillate fuel oil sulfur content on an as-received basis. This permit condition is consistent with all Tier II operating permits currently issued by DEQ and replaces the previous permits fuel sulfur content monitoring requirements.

Hazardous Air Pollutants (Permit Conditions 2.15-2.17)

Emissions of any single Hazardous Air Pollutant (HAP) from the entire facility shall not equal or exceed 10 tons per any consecutive 12-calendar month period. VOC emissions testing is required for the dryers at the facility as described below in the discussion of the permit conditions for the dryers (Section 6 and 7 below). In summary, if the VOCs emissions are measured to be greater than 2.26 pounds per hour (equivalent to 9.9 tons per year) from the Holo Flite Dryer #1 and Lube Grade Dryers (Holo Flite #2 and rotary kiln) combined then the permittee shall submit a refined HAP emission inventory within 60 days of permit issuance or within 60 days of conducting the performance test, which ever is later.

Portable Crusher – Permit Section 3.

Emissions were estimated from the portable crushing operations while operating at maximum daily production rates. Annual emissions were estimated assuming that the portable rock crusher would not process more than 700,000 tons per any consecutive 12-months. Emissions from the primary and secondary crushers were stated to be controlled by water sprays and the emission estimates reflected this level of control.

The permit requires compliance with annual throughput of 700,000 tons and also requires that the emissions from the primary and secondary crusher be controlled by water spray to assure emissions are consistent with those estimated. This throughput limit remains unchanged from what the facility was previously permitted. Additionally, Facility-Wide Permit Condition 2.1 requires reasonable control of fugitive emissions.

The fugitive emission rate limits of the original permit are not included in this permit.

Primary Crusher and Overland Transfer of Ore – Permit Section 4.

The permit limits the throughput to what was used in the emission estimates and requires that the baghouses be periodically inspected to assure that they are operating as designed. The throughput used in the emission inventory is 106,800 tons per calendar day and 16,242,500 tons per any consecutive 12-calendar month period. The throughput limitation remains unchanged from the previous permit. The

original permit limited PM emissions; this permit contains only PM_{10} emissions limits which also inherently limit PM emissions.

Compliance with the PM_{10} emission rate limits is assured by limiting the throughput of the primary crusher and overland conveyors. The permittee is also required to operate, maintain, and inspect a baghouse that controls emissions from these sources.

East and West Ore Feeders – Permit Section 5.

PM_{10} emissions from the East and West Ore Feeders are limited to the emission rates that were estimated by Thompson Creek and that were used in the air dispersion modeling which demonstrated compliance with the ambient standards. The original permit limited PM emissions; this permit contains only PM_{10} emissions which also inherently limit PM emissions. The throughput limits remain unchanged from the original permit.

The venturi scrubber pressure drop and scrubbing media flow rate are limited to the low range of values that the applicant stated that the scrubber operates at. Thompson Creek Mine may perform emissions testing at lower pressure drop and scrubbing liquid flow rates. If that emission testing shows compliance and DEQ approves the source test the operating limitation on pressure drop and scrubbing media flow rate may be lowered.

To assure compliance with the emission rate limits the throughput of the east and west ore feeders is limited and the permittee is required to operate, maintain, and monitor a venturi scrubber.

Holo Flite Dryer #1 – Permit Section 6.

Thompson Creek Mine provided emission estimates on for the Holo Flite Dryer #1 based on a methodology previously approved by DEQ. The estimated particulate matter emissions are 0.02 pounds per hour and 0.087 tons per year. These estimated emission rates were not included in the permit because they are so small. Even if the emissions were to increase by 10 times the emissions would still be insignificant. However, the permit does require that the wet scrubber and the ESP are operated and maintained so that particulate matter emissions remain insignificant.

Throughput is limited to what the applicant gave as the processing rate; the annual throughput remains the same as the original permit and the daily production increased from 160 tons per day to 247.7 tons per day. The scrubbing liquid flow rate to the wet scrubber is also limited consistent with the applicant's submittal. The permittee is required to maintain, and operate the ESP consistent with manufacturer requirements for secondary voltage, amperage, and spark rate. Additionally, the permittee is required to monitor and record the secondary voltage, amperage, and spark rate to assure the ESP is operated as designed. The operating and monitoring requirements for the ESP are the DEQ standard permit requirements for ESPs. The original proposed permit did not contain as stringent of operating and monitoring requirements for the ESP as does the current proposed permit because the original application materials did not make clear that the ESP is designed to control VOC emissions, and that there was significant potential for VOC emissions.

Because the VOC control efficiency of the wet scrubbers and the electrostatic precipitator that are used to control emissions from the dryers are unknown, a source test is required by the permit to determine the VOC emissions rates from both the Holo Flite Dryer #1 and the Lubricant Grade dryers (Holo Flite Dryer #2 and the Rotary Kiln). If the VOCs from emissions are measured to be greater than 2.26 pounds per hour (equivalent to 9.9 tons per year) from the Holo Flite Dryer #1 and Lube Grade Dryers (Holo Flite #2 and rotary kiln) combined then the permittee shall submit a refined HAP emission

inventory within 60 days of permit issuance or within 60 days of conducting the performance test, which ever is later. This is because there is a potential that the VOCs may include emissions of a HAP that when combined with other HAP emissions at the facility they may exceed the major facility threshold for HAPs (10 tons per year for any one HAP, and 25 tons per year of all HAPs). The maximum estimated emission for any single HAP at the facility is less than 0.1 tons per year, if VOC emissions from the dryers are greater than or equivalent to 9.9 tons per year then it is necessary to know what the HAP component of the VOCs are from the dryers to assure the facility is not emitting HAPs at major facility thresholds. If VOC emissions exceed 21 pounds per hour from all of the dryers then the major facility threshold for VOC emissions may be exceeded. However, an emission rate of 21 pounds per hour is not expected.

Holo Flite Dryer #2 & Rotary Kiln – Permit Section 7.

Particulate matter emission estimates are based on emissions testing conducted on February 28, 2000. The measured emissions were 0.001 pounds per hour. Similar to the permit conditions for the Holo Flite Dryer#1 the estimated emission rates of particulate were not included in the permit because they are so small. Even if the emissions were to increase by 10 times the emissions would still be insignificant. The permittee is required to maintain, and operate the ESP consistent with manufacturer requirements for secondary voltage, amperage, and spark rate. Additionally, the permittee is required to monitor and record the secondary voltage, amperage, and spark rate to assure the ESP is operated as designed. The ESP that controls emissions from Holo Flite Dryer #2 and the rotary kiln is the same ESP that controls emissions from Holo Flite Dryer #1.

Because the VOC control efficiency of the wet scrubbers and the electrostatic precipitator that are used to control emissions from the dryers are unknown a source test is required by the permit to determine the VOC emissions rates from both the Holo Flite Dryer #1 and the Lubricant Grade dryers (Holo Flite Dryer #2 and the Rotary Kiln). Potential VOC emissions from Lubricant Grade dryers are 82 tons per year. If VOC emissions are measured to be greater than 2.26 pounds per hour (equivalent to 9.9 tons per year) from the Holo Flite Dryer #1 and Lube Grade Dryers (Holo Flite #2 and rotary kiln) combined the permittee shall submit a refined HAP emission inventory within 60 days of permit issuance or within 60 days of conducting the performance test, which ever is later. The reason for this permit condition is described in more detail in this Statement of Basis in the discussion of the permit requirements for Holo Flite Dryer #1.

Throughput is limited to what the applicant gave as the processing rate and the scrubbing liquid flow rate to the wet scrubber is also limited. The throughput limit remains unchanged though is expressed in terms of tons per day instead of tons per hour. Holo Flite Dryer #2 and the Rotary Kiln are affected emission units in accordance with 40 CFR 60.380 and must monitor and record the pressure drop and scrubbing liquid flow rate to the scrubbers and report if the values vary by more than plus or minus 30% of the values measured during the most recent performance test. A copy of the most recent performance test is required to be maintained on site and made available to DEQ representatives upon request as a reasonable permit condition in accordance with IDAPA 58.01.01.211.

High Purity Molybdenum Milling and Packaging/ Lime Silo – Permit Section 8

All equipment that is used to mill and package high purity molybdenum are affected emission units in accordance with 40 CFR 60.380. Emissions from these affected units are controlled by a baghouse that can easily achieve the NSPS emission standard of 0.05 grams per dry standard cubic meter (.022 gr/dscf) as long as they are properly maintained. Emissions testing was conducted on the affected emissions units and emissions were found to be insignificant. The emission test results are summarized in Table 6.1.

Table 6.1 SUMMARY OF EMISSION TEST RESULTS

Source	Measured PM and Assumed Equivalent to PM_{10} (lb/hr)	Date of Emissions Test
Jet Mill Baghouse	0.016	October 27-28, 1998
Tech Fine Packaging Bin Baghouse	0.013	October 27-28, 1998
Pancake Mill Feed Bin Baghouse	0.001	May 25, 1999
Super Fine Packaging Bin Baghouse	0.024	May 26, 1999

Pound per hour and ton per year emission limits are not included in the permit for PM_{10}. Even if emissions were to increase by 10 times emission rates would remain insignificant. Ongoing compliance and with the NSPS grain loading standard is assured by requiring the baghouses to be inspected periodically to assure that they are operated and maintained as designed.

For modeling purposes emission from the lime silo were estimated to be 0.11 pounds per hour and were assumed to occur every hour of the day. This is conservative estimate because the lime silo only operates periodically. The permit requires maintaining and operating a baghouse to control emissions on the lime silo to assure compliance with the emission rate that was modeled.

Electrical Generator Sets – Permit Section 9

The permittee estimated and modeled emissions from the Tailings Pump, Mill Auxiliary and Pump Back emergency generators assuming they operate at maximum capacity for 500 hours during any consecutive 12-months, and that the motivator emergency generator operated 3,000 hours during any consecutive 12-months. These hours of operation are limited in the permit to assure emissions are consistent with those that were modeled and to limit the facilities potential to emit below major facility thresholds.

Leach Plant Scrubber – Permit Section 10

Measured HCl emissions from the leach plant scrubber are 0.003 pound per hour. If the scrubber operates at 99.9 percent control efficiency there is a potential that uncontrolled emissions would exceed 10 tons per year, the HAP major facility threshold. Therefore the permit requires that the wet scrubber be operated and monitored to assure that HCl emissions do not exceed 10 tons per year. Measured emission rates are so small that even an increase in emissions by a factor of 700 would not exceed 10 tons per year (assuming the leach plant operated 8760 hours per year). However under these same assumptions if the scrubber is not operated at all emission may exceed 10 tons per year. The important thing is that the permittee operate a caustic wet scrubber to control emissions, the exact operating parameters are not as import as it is that a caustic scrubber be operated and the scrubbing liquid and pH be monitored and maintained at values established by the permittee. Scrubbing liquid flow rate may be measured directly or by monitoring pump amps, impeller speed or any other indicator of flow rate.

Boiler, Hot Oil Heater and Waste Oil Heaters

Emissions from the Boiler, Hot Oil Heater and Waste Oil Heaters were estimated without restrictions on the potential to emit. Therefore, since the emission estimates and modeling analyses were conducted assuming worst case emissions it is not necessary to have operating restrictions or specific emission rate limits in the permit for these emissions units.

7. PUBLIC COMMENT

A public comment period was made available to the public from August 24, 2007 to September 24, 2007. During this time, comments were submitted in response to DEQ's proposed action. A response to public comments document has been crafted by DEQ based on comments submitted during the public comment period. That document is included as Appendix C of this statement of basis.

Information provided by the applicant in response to questions received during the public comment period on the initial proposed permit includes substantive new information. Therefore, in accordance with IDAPA 58.01.01.404.01.c, a public comment period on the updated application materials, updated proposed Tier II operating permit, and statement of basis will be provided.

8. RECOMMENDATION

Based on the review of the application materials, and all applicable state and federal regulations, staff recommends that DEQ issue proposed Tier II operating permit to Thompson Creek Mining Company. An opportunity for public comment on the air quality aspects of the proposed permit shall be provided in accordance with IDAPA 58.01.01.404.01.c.

DPP/dp Permit No. P-050508

Appendix A

AIRS Information

T2-050508

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: Thompson Creek Mine
Facility Location: Clayton, Idaho
AIRS Number: 037-00001

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	SM					SM		U
CO	B							U
PM_{10}	SM		SM					U
PT (Particulate)	SM							
VOC	B							U
THAP (Total HAPs)	SM						SM	
			APPLICABLE SUBPART					
			LL					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, **or** each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B

Modeling Review

T2-050508

MEMORANDUM

DATE: May 31, 2007

TO: Dan Pitman, P.E., Permit Writer, Air Program

FROM: Darrin Mehr, Air Quality Analyst, Air Program

PROJECT NUMBER: T2-050508

SUBJECT: Modeling Review for Thompson Creek Mining Company, Tier II Permit Renewal Application for their facility near Clayton, Idaho.

1.0 Summary

Thompson Creek Mining Company (TCMC) submitted a Tier II Operating Permit application to renew the facility's Tier II Operating Permit No. 037-00001, which expired on December 22, 2004. The application was received on April 5, 2006.

The application's modeling analysis addressed demonstrating compliance with the National Ambient Air Quality Standards (NAAQS). A compliance demonstration for toxic air pollutants (TAPs) is not applicable to this permitting project.

A technical review of the submitted air quality analyses was conducted by DEQ. The submitted modeling analyses in combination with DEQ's staff analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed that predicted pollutant concentrations from emissions associated with the facility, when appropriately combined with background concentrations, were below applicable air quality standards at all receptor locations. Table 1 presents key assumptions and results that should be considered in the development of the permit.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
A revised point source PM_{10} emission inventory was modeled by DEQ with the following changes: • Four waste oil heaters located in the Truck Shop and Wash Bay with emissions of 0.11 lb/hr each were included in DEQ's verification modeling run. • Emissions from the East and West Ore Feeders were increased from 0.5 lb/hr each to 2.5 lb/hr each. • Emissions from Boiler #1 and the Hot Oil Boiler were each increased less than 0.01 lb/hr. Inclusion of the four waste oil heaters and the increase in the PM_{10} emission rates for the East and West Ore Feeders resulted in a negligible increase in ambient impacts for the 24-hour PM_{10} NAAQS.	PM_{10} emissions from the East and West Ore Feeders are each controlled by venturi scrubbers with 95% control efficiency for PM_{10}. Based upon the DEQ verification modeling results using the revised PM_{10} emission inventory and new waste oil heater point source data, and the ambient impacts presented by Thompson Creek's modeling demonstration, DEQ did not revise and re-run modeling scenarios for the SO_2, NO_x, CO, and annual PM_{10} NAAQS. The results of modeling the revised PM_{10} emissions inventory to include the waste heaters that were not included in Thompson Creek's modeling demonstration and the increased emissions from the East and West Ore Feeders demonstrates that the facility's ambient impacts for PM_{10} are not close to the 24-hour and annual PM_{10} NAAQS. Pollutant-specific emissions limits are not recommended based on modeling.

2.0 Background Information

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

2.1.1 Area Classification

The TCMC facility is located in Custer County, designated as an unclassifiable or attainment area for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), ozone (O_3), and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}). There are no Class I areas within 10 kilometers of the facility.

2.1.2 Significant and Full Impact Analyses

A significant impact analysis is not required for a Tier II permit renewal unless a modification is proposed as part of the application. However, TCMC submitted a significant contribution analysis to with this application, in part, to determine whether results from a full impact analysis would be presented

If estimated maximum pollutant impacts to ambient air from the emissions sources at the facility exceed the significant contribution levels (SCLs) of IDAPA 58.01.01.006.90, then a full impact analysis is necessary to demonstrate compliance with IDAPA 58.01.01.203.02. A full impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting maximum pollutant concentrations in ambient air are then compared to the National Ambient Air Quality Standards (NAAQS) listed in Table 2. Table 2 also lists SCLs and specifies the modeled value that must be used for comparison to the NAAQS.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	Modeled Value Used[d]
PM_{10}[e]	Annual	1.0	50[f]	Maximum 1st highest[g]
	24-hour	5.0	150[h]	Maximum 6th highest[i]
Carbon monoxide (CO)	8-hour	500	10,000[j]	Maximum 2nd highest[g]
	1-hour	2,000	40,000[j]	Maximum 2nd highest[g]
Sulfur Dioxide (SO_2)	Annual	1.0	80[f]	Maximum 1st highest[g]
	24-hour	5	365[j]	Maximum 2nd highest[g]
	3-hour	25	1,300[j]	Maximum 2nd highest[g]
Nitrogen Dioxide (NO_2)	Annual	1.0	100[f]	Maximum 1st highest[g]
Lead (Pb)	Quarterly	NA	1.5[h]	Maximum 1st highest[g]

[a]IDAPA 58.01.01.006.90
[b]Micrograms per cubic meter
[c]IDAPA 58.01.01.577 for criteria pollutants
[d]The maximum 1st highest modeled value is always used for significant impact analyses
[e]Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[f]Never expected to be exceeded for any calendar year
[g]Concentration at any modeled receptor
[h]Never expected to be exceeded more than once in any calendar year
[i]Concentration at any modeled receptor when using five years of meteorological data
[j]Not to be exceeded more than once per year

2.1.3 TAPs Analyses

There are no increases in TAPs emissions for this project. Therefore, IDAPA 58.01.01.210 does not apply, and additional analyses are not required to demonstrate compliance with the toxic air pollutant (TAP) increments.

2.2 Background Concentrations

Ambient background concentrations were revised for all areas of Idaho by DEQ in March 2003[1]. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources. Background concentrations used in these analyses are listed in Table 3. Background concentrations for NO_2, SO_2, and PM_{10} were based on small rural remote non-agricultural default values. Background concentrations for CO are not listed because the maximum design concentrations from the significant impact analysis did not exceed the significant contribution levels listed above in Table 3.

Table 3. BACKGROUND CONCENTRATIONS

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)[a]
PM_{10}[b]	24-hour	43
	Annual	9.6
NO_2[c]	Annual	4.3
SO_2[d]	3-hour	34
	24-hour	26
	Annual	8

[a] Micrograms per cubic meter
[b] Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[c] Nitrogen dioxide
[d] Sulfur dioxide

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

Table 4 provides a summary of the modeling parameters used in the DEQ verification analyses.

1 Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

Table 4. MODELING PARAMETERS		
Parameter	**Description/ Values**	**Documentation/Additional Description**
Model	ISC3-PRIME	ISC3PBEE (ISCST3 with the PRIME algorithm, version 04272) for the 24-hour PM_{10} verification run.
Meteorological data	1987-1991 Surface Data and Upper Air Data	Surface meteorological data was from the Pocatello, Idaho airport and the upper air meteorological data was from the Boise, Idaho Airport. The anemometer height was correctly set to 6.1 meters.
Land Use (urban or rural)	Rural	Rural dispersion coefficients were used based on the surrounding land use being a remote mountainous area
Terrain	Considered	Receptor 3-dimensional coordinates were utilized. Each receptor was assigned an elevation. DEQ did not re-import the DEM files.
Building downwash	Downwash algorithm	Building dimensions obtained from modeling files submitted, and BPIP was used to evaluate downwash effects.
Receptor grid	Grid 1	25-meter spacing along the ambient air boundary and outward 500 meters beyond the ambient air boundary
	Grid 2	100-meter spacing from 500 meters to a distance of 2,000 meters beyond the ambient air boundary
	Grid 3	250-meter spacing from 2,000 meters to 5,000 meters beyond the ambient air boundary

3.1.1 Modeling protocol

A protocol was submitted by The RETEC Group, Inc. (RETEC) on behalf of TCMC, on March 13, 2006 prior to submission of the modeling demonstration. The modeling protocol was approved with comments by DEQ on March 23, 2006. Modeling was conducted using methods listed in the modeling protocol and those required by the *State of Idaho Air Quality Modeling Guideline*.

3.1.2 Model Selection

TCMC used ISCST3 to conduct the final ambient air impact analyses for this project. This permit application was submitted to DEQ prior to the deadline requiring the use of AERMOD as the guideline model. DEQ agrees that use of the PRIME downwash algorithm was not needed to estimate worst-case ambient impacts due to building downwash.

3.1.3 Meteorological Data

Pocatello surface data and Boise upper air meteorological data were used for the TCMC site near Clayton.

TCMC had collected on-site meteorological data, but RETEC determined that the meteorological dataset was not representative of actual conditions at the site and was missing certain data elements. DEQ supplied the alternative met data used for this analysis. All mixing height values were set to a value of 50 meters if PCRAMMET calculated lower mixing height values.

3.1.4 Terrain Effects

The modeling analyses submitted by TCMC considered elevated terrain. The elevation was assigned to each receptor. Elevations of emission sources, buildings, and receptors were not regenerated from DEM files for DEQ's verification analyses.

3.1.5 Facility Layout

DEQ verified proper identification of the facility boundary and buildings on the site by comparing the modeling input to satellite images of the site obtained from the Google Earth internet site to confirm the facility layout.

3.1.6 Building Downwash

Plume downwash effects caused by structures present at the facility were accounted for in the modeling analyses. The Building Profile Input Program (BPIP) was used by the applicant to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emissions release parameters for ISCST3. ISCST3 identified the effects of structure-induced downwash on predicted ambient impacts.

DEQ used ISCST3 with the PRIME algorithm and BPIP-PRIME to verify there were no effects on the ambient impact design concentrations from building downwash in the verification analyses. This is consistent with the comments DEQ provided to RETEC in the modeling protocol approval. DEQ's analysis confirmed that higher predicted ambient impacts did not occur at receptors along the ambient air boundary. RETEC's use of ISCST3 is valid for this application.

3.1.7 Ambient Air Boundary

Ambient air was determined by TCMC to exist exterior to the boundary of the patented and unpatented mill sites. Portions of the facility are fenced and access by roads is controlled by locked or guarded gates. It is assumed that the mining operation personnel monitor and restrict access into the open pit mining region of the site. TCMC also states that the remoteness, steepness of terrain, and distance from accessible roadways were considered in determining the facility ambient air boundary. DEQ approves of this ambient air boundary.

3.1.8 Receptor Network

The receptor grids used by TCMC met the minimum recommendations specified in the *State of Idaho Air Quality Modeling Guideline*. DEQ verification analyses were conducted using the same receptor grid.

3.2 Emission Rates

Emissions rates used in the dispersion modeling analyses submitted by the applicant were reviewed against those in the permit application. The following approach was used for DEQ verification modeling:

- All modeled criteria air pollutant emissions rates were equal to or greater than the facility's emissions calculated in the Tier II permit application or requested permit allowable emission rates.

Tables 5 and 6 list the criteria air pollutant emissions rates for sources included in the dispersion modeling analyses for short term and annual averaging periods, respectively. The emission rates listed in Table 6 were used by TCMC in their modeling analysis. Daily emissions were modeled by TCMC for 24 hours. Annual emissions were modeled over 8,760 hours per year.

Table 5. MODELED CRITERIA POLLUTANT SHORT-TERM EMISSIONS RATES				
Source ID	Description	Emission Rates (lb/hr[a])		
		PM_{10}[b], 24-hr avg	SO_2[c], 3-hr avg and SO_2, 24-hr avg	CO[d], 1-hr avg and CO, 8-hr avg
PRIMCRUS	Primary Crusher	2.22	NA[e]	NA
OVERCONV	Overland Conveyor	2.67	NA	NA
EASTORE	East Ore Feeder	2.50	NA	NA
WESTORE	West Ore Feeder	2.50	NA	NA
HOLODRYR	Holoflite Dryer #1	0.018	NA	NA
LUBEDRYR	Holoflite Dryer #2, Rotary Kiln, Lube Grade Dryer Stack	0.0008	NA	NA
JETMILL	Jet Mill Baghouse Stack	0.016	NA	NA
PANMILL	Pancake Mill Feed Bin Baghouse Stack	0.0008	NA	NA
PEBBLELM	Pebble Lime Baghouse	0.11	NA	NA
BOILER#1	Boiler #1	0.08	2.34	0.17
HOTOIL	Hot Oil Boiler	0.031	0.96	0.067
MOTIVATR	Motivator	3.28	3.06	10.13
MILLAUX	Mill Auxiliary Generator	0.58	0.54	1.80
PUMPBACK	Pumpback Generator	0.99	0.92	3.06
TAILPUMP	Tailings Pump Generator	2.80	2.61	8.65
PACKBIN	Tech Fine Packaging	0.013	NA	NA
SFSTOR	Super Fine Packaging Bin Baghouse	0.024	NA	NA
ORE_DROP	Ore Drop to Mill Stockpile	6.79	NA	NA
PTC_AREA	Portable Crusher	14.96	NA	NA
PTC_LOAD	Truck Dump to Primary Crusher	0.71	NA	NA
WOILHTR1[f]	Waste Oil Heater #1	0.11	0.25	0.018
WOILHTR2[f]	Waste Oil Heater #2	0.11	0.25	0.018
WOILHTR3[f]	Waste Oil Heater #3	0.11	0.25	0.018
WOILHTR4[f]	Waste Oil Heater #4	0.11	0.25	0.018

[a] Pounds per hour
[b] Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[c] Sulfur dioxide
[d] Carbon monoxide
[e] Not applicable—pollutant not emitted by this source
[f] Emission unit included by DEQ in verification modeling based on Thompson Creek's April 11, 2007 submittal

Table 6. MODELED CRITERIA POLLUTANT ANNUAL EMISSIONS RATES				
Source ID	Description	Emission Rates (lb/hr[a])		
		PM_{10}[b], annual avg	SO_2[c], annual avg	NO_x[c], annual avg
PRIMCRUS	Primary Crusher	0.93 (2.22)[g]	NA[e]	NA
OVERCONV	Overland Conveyor	1.11 (2.67)[g]	NA	NA
EASTORE	East Ore Feeder	0.50 (2.50)[g]	NA	NA
WESTORE	West Ore Feeder	0.50 (2.50)[g]	NA	NA
HOLODRYR	Holoflite Dryer #1	0.018	NA	NA
LUBEDRYR	Holoflite Dryer #2, Rotary Kiln, Lube Grade Dryer Stack	0.001 (0.0008)[g]	NA	NA
JETMILL	Jet Mill Baghouse Stack	0.013 (0.016)[g]	NA	NA
PANMILL	Pancake Mill Feed Bin Baghouse Stack	0.00 (0.008)[g]	NA	NA
PEBBLELM	Pebble Lime Baghouse	0.005 (0.11)[g]	NA	NA
BOILER#1	Boiler #1	0.066 (0.08)[g]	2.34	0.66
HOTOIL	Hot Oil Boiler	0.027 (0.031)[g]	0.96	0.27
MOTIVATR	Motivator	1.12 (3.28)[g]	1.05	15.82
MILLAUX	Mill Auxiliary Generator	0.033 (0.58)[g]	0.031	0.47
PUMPBACK	Pumpback Generator	0.056 (0.99)[g]	0.052	0.80
TAILPUMP	Tailings Pump Generator	0.16 (2.80)[g]	0.15	2.25
PACKBIN	Tech Fine Packaging	0.010 (0.013)[g]	NA	NA
SFSTOR	Super Fine Packaging Bin Baghouse	0.024	NA	NA
ORE_DROP	Ore Drop to Mill Stockpile	2.83 (6.79)[g]	NA	NA
PTC_AREA	Portable Crusher	5.98 (14.96)[g]	NA	NA
PTC_LOAD	Truck Dump to Primary Crusher	0.28 (0.71)[g]	NA	NA
WOILHTR1[f]	Waste Oil Heater #1	0.11	0.25	0.20
WOILHTR2[f]	Waste Oil Heater #2	0.11	0.25	0.20
WOILHTR3[f]	Waste Oil Heater #3	0.11	0.25	0.20
WOILHTR4[f]	Waste Oil Heater #4	0.11	0.25	0.20

[a] Pounds per hour
[b] Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[c] Sulfur dioxide
[d] Nitrogen dioxide (all NO_x assumed to be NO_2)
[e] Not applicable—pollutant not emitted by this source
[f] Emission unit included by DEQ in verification modeling based on Thompson Creek's April 11, 2007 submittal
[g] Emission rate in parentheses modeled by DEQ for annual PM_{10} NAAQS compliance verification

3.3 Emission Release Parameters

Table 7 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity for point sources. Table 8 lists the emission release parameters for volume sources. Values used in the analyses appeared reasonable and within expected ranges. Additional documentation for the verification of these parameters was not required.

The exhaust parameters for Boiler #1 and the Hot Oil Boiler were listed in the permit application as having vertical, uninterrupted releases, but the exit velocity for each source was set to 0.001 meters per second in the modeling file by TCMC to either reflect a horizontal or being equipped with a raincap.

Exit diameter values for the Overland Conveyor, Tailings Pump, Pancake Mill Feed Bin Baghouse, and Super Fine Packaging Bin Baghouse were each set to 0.001 meters in the modeling file by TCMC. The stack data in the emission inventory reflects larger exit diameters than the values used in the modeling demonstration. The exit velocity for each of these sources was properly set to 0.001 meters per second due to a horizontal release orientation.

DEQ did not require the applicant to resolve the differences in exit velocities and diameters because the values used in the model generally cause the most conservative ambient impact predictions, and the predicted ambient impacts were not close to any ambient air quality standard.

Table 7. POINT SOURCE STACK PARAMETERS

Release Point	Release Point Description	Stack Height (m)[a]	Modeled Stack Diameter (m)	Stack Gas Temp (K)[b]	Stack Gas Flow Velocity (m/sec)[c]
PRIMCRUS	Primary Crusher	20.0	0.71	0	21.4
OVERCONV	Overland Conveyor	3.1	0.001	0	0.001[d]
EASTORE	East Ore Feeder	26.0	0.47	286	17.8
WESTORE	West Ore Feeder	26.0	0.47	286	17.8
HOLODRYR	Holoflite Dryer #1	24.7	0.30	300	4.4
LUBEDRYR	Holoflite Dryer #2, Rotary Kiln, Lube Grade Dryer Stack	27.5	0.20	294	7.3
JETMILL	Jet Mill Baghouse Stack	11.4	0.38	299	0.001[e]
PANMILL	Pancake Mill Feed Bin Baghouse Stack	4.5	0.001	299	0.001[d]
PEBBLELM	Pebble Lime Baghouse	21.0	0.31	0	12.9
BOILER#1	Boiler #1	25.6	0.31	533	0.001
HOTOIL	Hot Oil Boiler	25.6	0.31	533	0.001
MOTIVATR	Motivator Generator	4.6	0.10	755	135.4
MILLAUX	Mill Auxiliary Generator	6.1	0.15	922	0.001[e]
PUMPBACK	Pumpback Generator	3.7	0.15	755	62.9
TAILPUMP	Tailings Pump Generator	4.6	0.001	755	0.001[d]
PACKBIN	Tech Fine Packaging	11.6	0.001	300	0.001[d]
SFSTOR	Super Fine Packaging Bin Baghouse	7.6	0.001	296	0.001[d]
WOILHTR1[f]	Waste Oil Heater #1	7.6	0.20	405	0.001[d]
WOILHTR2[f]	Waste Oil Heater #2	7.6	0.20	405	0.001[d]
WOILHTR3[f]	Waste Oil Heater #3	7.6	0.20	405	0.001[d]
WOILHTR4[f]	Waste Oil Heater #4	7.6	0.20	405	0.001[d]

[a] Meters
[b] Kelvin
[c] Meters per second
[d] Horizontal release
[e] Capped release
[f] Emission unit included by DEQ in verification modeling based on Thompson Creek's April 11, 2007 submittal

Table 8. VOLUME SOURCE RELEASE PARAMETERS

Release Point	Description	Release Height (m^a)	Horizontal Dimension (m)	Vertical Dimension (m)
ORE_DROP	Ore Drop to Mill Stockpile	67.5	0.4	2.5
PTC_AREA	Portable Crusher	0	11.6	2.1
PTC_LOAD	Truck Dump to Primary Crusher	0	0.7	1.1

[a] Meters

3.4 Results for Significant and Full Impact Analyses

3.4.1 Significant Impact Analysis

A significant contribution analysis was submitted for this application that addressed facility-wide emissions, except for the four waste oil heaters. Inclusion of the waste oil heaters in the modeling demonstration is not anticipated to cause the maximum carbon monoxide ambient impacts to exceed the

significant contribution levels for that pollutant, and DEQ did not remodel CO emissions for this project. The results of TCMC's significant contribution analyses are listed in Table 9.

Table 9. SIGNIFICANT CONTRIBUTION ANALYSES

Pollutant	Averaging Period	Maximum Ambient Concentration[a] ($\mu g/m^3$)[b]	Significant Contribution Level ($\mu g/m^3$)	Is Maximum Ambient Impact Greater Than The Significant Contribution Level?
PM_{10}[d]	24-hour	96.7	5	Yes
	Annual	3.8	1	Yes
SO_2[e]	3-hour	102.5	25	Yes
	24-hour	32.4	5	Yes
	Annual	2.5	1	Yes
NO_2[f]	Annual	4.7	1	Yes
CO[g]	1-hour	393.3	2,000	No
	8-hour	194.2	500	No

[a] Highest 1st high value
[b] Micrograms per cubic meter
[c] National ambient air quality standards
[d] Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
[e] Sulfur dioxide
[f] Nitrogen dioxide
[g] Carbon monoxide

3.4.2 Full Impact Analysis

TCMC submitted a full impact analysis for SO_2, PM_{10}, and NO_x emissions. DEQ re-ran the modeling demonstration for PM_{10}, 24-hour and annual averaging periods and included the four waste oil heaters in the modeling inventory. DEQ's highest 1st high value matched TCMC's value. The PM_{10} 24-hour average emission inventory was run by DEQ for the annual averaging period, which is a conservative approach. The resulting annual ambient impacts were not close to the NAAQS even when using DEQ's worst-case methods.

DEQ did not re-run the model for any other pollutants. All design concentrations used by TCMC are highest 1st high values. This is conservative for all short-term averaging periods. TCMC's and DEQ's results are shown in Table 10. All NO_x emissions were assumed to be emitted as NO_2. The maximum ambient impact for CO emissions did not exceed the significant contributions levels, so a full impact analysis was not conducted for this pollutant.

Table 10. RESULTS OF FULL IMPACT ANALYSES						
Pollutant	**Averaging Period**	**Modeled Design Concentration[a] ($\mu g/m^3$)[b]**	**Background Concentration ($\mu g/m^3$)**	**Total Ambient Impact[a] ($\mu g/m^3$)**	**NAAQS[c] ($\mu g/m^3$)**	**Percent of NAAQS**
PM_{10}[d]	24-hour	96.7[g] (46.3)[h]	43	139.7 (89.3)	150	93% (60%)[h]
	Annual	3.8 (8.1)[i]	9.6	13.4 (17.7)[i]	50	27% (35%)[i]
SO_2[e]	3-hour	102.5	34	136.5	1,300	11%
	24-hour	32.4	26	58.4	365	16%
	Annual	2.5	8	10.5	80	13%
NO_2[f]	Annual	4.7	4.3	9.0	100	9%

[a] Values in parentheses were obtained from DEQ verification modeling using ISC3PBEE, version 04272.
[b] Micrograms per cubic meter
[c] National ambient air quality standards
[d] Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
[e] Sulfur dioxide
[f] Nitrogen dioxide
[g] TCMC used the highest first high value as a design concentration
[h] DEQ verification analysis result for PM_{10}, 24-hour average, design concentration is the highest 6th high value with 5 years of met data
[i] DEQ verification analysis result for PM_{10}, annual average, first high value, using the worst-case 24-hour PM_{10} emissions inventory instead of the annual emissions inventory submitted by TCMC

4.0 Conclusions

The ambient air impact analysis submitted, in combination with DEQ's verification analyses, demonstrated to DEQ's satisfaction that emissions from the facility, as represented by the applicant in the permit application, will not cause or significantly contribute to a violation of any air quality standard.

Appendix C

Response to Public Comments

T2-050508

Air Quality Permitting
Response to Public Comments

December 14, 2007

Tier II Operating Permit No. T2-050508

CYPRUS THOMPSON CREEK MINING COMPANY
CLAYTON, IDAHO

Facility ID No. 037-00001

Prepared by:
Kevin Schilling, Modeling Coordinator
Dan Pitman, Permit Writer
AIR QUALITY DIVISION

1. BACKGROUND

As deemed appropriate by the Director, the Idaho Department of Environmental Quality (DEQ) provided for public comment on the proposed Tier II Operating Permit renewal T2-050508 for Cyprus Thompson Creek Mine and Mill located near Clayton, Idaho.

The Public Comment period was provided from August 24, 2007 through September 24, 2007. Comments were provided via email. Each comment received and DEQ's Response to the comment is provided in the following section. Comments with a common theme have been grouped together as one comment and responded to as one comment. All comments submitted in response to DEQ's proposed action are included in the appendix of this document.

2. PUBLIC COMMENT AND RESPONSES

Public comments regarding the permit analysis and air quality aspects of the proposed permit are summarized below. Questions, comments, and/or suggestions received during the comment period that did not relate to the air quality aspects of the permit application, the Department's technical analysis, or the proposed permit are not addressed.

Comments Received

Comment 1: As noted in DEQ modeling results presented in the statement of basis, this facility (not counting fugitives from the mining operations) is a "significant" source of both PM and PM-10. As a result of the facility, ambient 24-hour PM-10 concentrations are potentially at 60% of the NAAQS. Fugitives need to be modeled to ensure that NAAQS are still met.

Response: IDAPA 58.01.01.403 states that no Tier II operating permit shall be granted unless the applicant shows to the satisfaction of the Department that the facility would not cause or significantly contribute to a violation of any ambient air quality standard. Typically, the most appropriate method to satisfy this requirement is to conduct an atmospheric dispersion modeling analysis of emissions at the specific facility. IDAPA 58.01.01.402.03 states, "All estimates of ambient concentrations shall be based on the applicable air quality models, data bases, and other requirements specified in 40 CFR 51 Appendix W (Guideline on Air Quality Models)." DEQ has determined for the Thompson Creek Mining facility that estimating the contribution of fugitive emissions to modeled ambient concentrations, by specifically including estimated fugitive emissions in the model, is not practical or appropriate because of the following: 1) emissions from these fugitive sources are highly variable and quantification of such emissions are highly uncertain; 2) specific locations of emissions sources at the site and operational rates of such sources are highly variable, making results from any modeling analysis extremely uncertain; 3) modeled concentrations resulting from emissions of point sources and process fugitives (crushers, screens, etc) are well below the PM10 standard even when a conservative background concentration value is added, and DEQ is highly confident that emissions from reasonably controlled fugitive sources would not result in a contribution to concentrations exceeding the applicable standards, given the characteristics of the fugitive emissions and the site in general (size of site, climate, nature of operations, etc.). Because of the issues described above, DEQ determined highly refined estimates of fugitive emissions and inclusion of those emissions into a dispersion model would not provide DEQ with useful information to evaluate compliance with applicable air quality standards. Furthermore, based on dispersion modeling experience and in-field real-time near-source monitoring experience of DEQ modeling staff, DEQ is confident that reasonably controlled sources of fugitive emissions would not have an impact in excess of 60 micrograms per cubic meter (the difference between point source and process fugitive modeling results and the 150 microgram per cubic meters PM10 24-hour standard).

Comment 2: There are no emissions estimates for fugitive PM/MP-10 from the mining activities (earth moving, blasting, etc) contained in the Statement of Basis for the Proposed Permit.

Response: The applicant provided emission estimates for fugitive PM and PM-10. These emissions do not count towards the facilities classification as major or minor because the facility is not a

designated source as defined by IDAPA 58.01.01.006.30. The statement of basis has been updated to make this point clear.

Emissions estimates were included in the application for blasting, haul roads, ore loading and dumping, and crushing. The emissions are listed on pages 23 through 26 of the April 11, 2007 application materials provided by Thompson Creek. The applicant conservatively assumed that all PM was PM_{10} and used various emission factors including those from AP-42 to arrive at the estimated emissions. Total PM/PM_{10} are very conservatively estimated to be 1,304 tons per year. These emissions were estimated by the applicant assuming no control of fugitive emissions (except for primary crushing, conveying and haul roads) therefore they do not represent emissions that will occur while reasonably controlling fugitive emissions as required by IDAPA 58.01.01.650 and as required by the fugitive dust control plan that the facility must develop and comply with. Fugitive dust emission factors are generally highly uncertain and unreliable (EPA AP-42 ratings, and *Fugitive Dust Control Technology* rating, page 54). Often the factors and are dependent on many variables that are highly variable and difficult to accurately determine such as wind speed and soil moisture content. Rather than refining emission estimates for fugitive emissions that are based on unreliable emission factors, compliance with the requirement to reasonably control fugitive emissions is relied upon. The permit also requires that permittee shall develop, implement, and maintain a fugitive dust control plan to assure that fugitives are reasonably controlled. The permit requires that the permittee shall modify the fugitive dust control plan if it is determined that fugitive emissions are not being reasonably controlled. This is a practical way of regulating fugitive emissions as opposed to consuming energies refining fugitive emissions estimates from a facility in a remote location using poor and unreliable emission estimation methods.

Fugitive emission rate limits are considered practically unenforceable and are not included in permits. However, the fugitive dust plan and the requirement to reasonably control fugitive emissions are enforceable and are included in the permit. These practically enforceable operating requirements have the affect of limiting fugitive emission rates.

Comment 3: The Proposed Tier 2 does not contain a detailed Fugitive Dust Control Plan. Although, section 2 the Proposed Permit contains facility-wide conditions related to fugitive dust, this section does not mention mining operations specifically.

Response: The proposed permit has been updated to include a requirement for the permittee to develop, maintain, and comply with a fugitive dust control plan. The plan is required to address all primary sources of fugitive emission from the mine including blasting operations. The fugitive dust control plan is in Section 2.1 of the permit.

Comment 4: The emissions estimates contained in the Statement of Basis for the Proposed Permit fail to provide estimates of the HAPs/TAPs that are emitted from the facility's dryers and kiln. Earthen material heated in the dryers (Holo Flite Dryer #1 and Holo Flite Dryer #2) and the two kiln (two Rotary Kiln Dryer vented through Lube Grade Dryer Stack) likely have emissions of pollutants found naturally in the ore and released when heated. Such pollutants might include arsenic, cadmium, mercury, etc.

Response: Concentrate grade molybdenum is produced by drying the concentrate in Holo Flite Dryer #1. The Holo Flite Dryer #1 is a heated screw conveyor and operates at the boiling temperature of water (212 degrees Fahrenheit). There is no further heating of the concentrate. All HAP (Hazardous Air Pollutant) metals, except mercury would exist as particulate matter at these operating temperatures. Mercury is not detectable in the ore, therefore emissions of mercury are negligible. Particulate matter emissions from Holo Flite Dryer #1 are controlled by wet scrubber

and then by an electrostatic precipitator. Particulate matter emissions from Holo Flite Dryer #1 are estimated to be 0.087 tons per year. Since all HAP metals (except mercury) would exist as particulate matter at these operating temperatures, metal emissions could not exceed the estimate for PM emissions. Table 1 provides a summary of the individual hazardous air pollutant metal emissions estimates provided Thompson Creek for Holo Flite Dryer #1.

Lubricant grade molybdenum is produced by drying the concentrate in Holo Flite Dryer #2 then it is further dried in a rotary kiln. Holo Flite Dryer #2 is a screw conveyor and operates at 212 degrees Fahrenheit; the Rotary Kiln operates at a maximum temperature of 1,250 degrees Fahrenheit. The maximum operating temperature of 1,250 degrees Fahrenheit is below the melting point of all metals listed as hazardous air pollutants except mercury. As previously stated mercury is not detectable in the ore and emissions would negligible. The exhaust gases from the Lubricant Grade Drying Circuit are cooled below 100 degrees Fahrenheit, in part because a wet scrubber is used to control emissions. All HAP metals, except mercury would exist as particulate matter at this operating temperature. Particulate matter emissions from the lubricant grade molybdenum production circuit are controlled by wet scrubber and then by an electrostatic precipitator. Particulate matter emissions from lubricant grade molybdenum production circuit were determined by emissions testing to be 0.004 tons per year. Therefore metal emissions could not exceed 0.004 tons per year. Table 1 provides a summary of the individual hazardous air pollutant metal emissions estimates provided Thompson Creek for the Lubricant Grade Molybdenum drying circuit.

Table 1. Metal Emissions From Holo Flite Dryer #1 and Lubricant Grade Drying Circuit

	Arsenic (T/yr)	**Lead (T/yr)**	**Chromium (T/yr)**	**Cadmium (T/yr)**	**Cobalt (T/yr)**	**Mercury**	**Beryllium (T/yr)**	**Nickel (T/yr)**
Holo Flite Dryer #1	1.71E-5	3.91E-5	2.6E-5	4.19E-7	2.0E-8	Not Detectable	2.2E-8	2.6e-6
Lubricant Grade Drying Circuit	3.75E-7	8.57E-7	5.69E-7	9.2E-9	4.38E-10	Not Detectable	4.82E-8	5.69E-10

Total particulate matter emissions from all the dryers at the facility are estimated to be 0.091 tons per year. Because all HAP metals detectable in the ore will exist as particulate matter at the operating temperatures of the exhaust gases, HAP metal emissions from the dryers could not exceed the particulate matter estimated emission rate of 0.091 tons per year. Therefore, refining the individual HAP metal emission estimates provided by the applicant is not necessary. Even if PM/HAP metal emissions were to increase by a factor of 10, emissions would remain negligible.

A demonstration of compliance with the preconstruction requirements for toxic air pollutants (TAPs) is not required because the dryers were constructed prior to the applicability date of the preconstruction requirements for toxic air pollutants.

Appendix

Public Comments Submitted for

Permit to Construct

T2-050508

www.wildidaho.org

Idaho Conservation League
PO Box 844, Boise, ID 83701
208.345.6933

Joan Lechtenberg
Air Quality Program
Idaho Department of Environmental Quality
1410 N. Hilton
Boise, ID 83706

9/24/07

RE: Idaho Conservation League comments on proposed Tier 2 Operating Permit for Thompson Creek Mine (T2-050508)

Dear Ms. Lechtenberg;

Thank you for allowing us to submit comments on the proposed Tier 2 Operating Permit for Thompson Creek Mine (T2-050508). The Idaho Conservation League has a long history of involvement with conservation issues in Idaho. As Idaho's largest statewide conservation organization, we represent members in the vicinity of the Thompson Creek Mine, with a deep personal interest in protecting air quality and human health from the harmful effects of pollution.

Our review of the proposed Tier 2 Operating Permits resulted in concerns regarding two issues: fugitive dust and HAPs/TAPs.

Fugitive Dust

There are no emissions estimates for fugitive PM/MP-10 from the mining activities (earth moving, blasting, etc) contained in the Statement of Basis for the Proposed Permit, nor is this impact integrated into the proposed permit.

This matter needs to be addressed because, as noted in DEQ modeling results presented in the statement of basis, this facility (not counting fugitives from the mining operations) is a "significant" source of both PM and PM-10. As a result of the facility, ambient 24-hour PM-10 concentrations are potentially at 60% of the NAAQS. Fugitives need to be modeled to ensure that NAAQS are still met.

DEQ notes in the statement of basis that fugitive emissions do not count for this facility because the facility is not a designated facility. However, this does not release the facility from the need to provide this emissions information to DEQ, and for DEQ to integrate them into the emissions inventory for ambient impact analysis.

Further, the Proposed Tier 2 does not contain a detailed Fugitive Dust Control Plan. Although, section 2 the Proposed Permit contains facility-wide conditions related to fugitive dust, this section does not mention mining operations specifically.

We feel it would be prudent to provide a greater level of guidance to the operators of the mine. The determination of what is "reasonable" and thus required under IDAPA 58.01.01.650-651 should not be left to the operator.

We ask that the final Tier 2 include a requirement that the operators develop and submit Fugitive Dust Control Plan to DEQ for approval.

HAPs/TAPs

The emissions estimates contained in the Statement of Basis for the Proposed Permit fail to provide estimates of the HAPs/TAPs that are emitted from the facility's dryers and kiln.

Earthen material heated in the dryers (Holo Flite Dryer #1 and Holo Flite Dryer #2) and the two kilns (two Rotary Kiln Dryer vented through Lube Grade Dryer Stack) likely have emissions of pollutants found naturally in the ore and released when heated. Such pollutants might include arsenic, cadmium, mercury, etc.

We ask that DEQ direct the operator to quantify this emission and that the public be given an opportunity to review this new information and provide comment.

Again, thank you for the opportunity to provide comment on this matter. Please do not hesitate to contact me if you have questions about our comments.

Sincerely,

S/ Justin Hayes

Justin Hayes
Program Director